

REMARKS/ARGUMENTS

Favorable reconsideration of this application is requested in view of the above amendments and in light of the following remarks and discussion.

Claims 1-12, 14-19, and 21-30 are pending. Claims 1, 5-8, 12, 14, 16, 17 are amended. Claims 28-30 are newly added. Support for the amendments to Claims 1, 12, and 14 can be found in Figs. 2 and 6 and the corresponding description thereof. Support for the amendment to Claims 5-8, 16, and 17 is self-evident. Support for newly added dependent Claims 28-30 can be found in the published application in numbered paragraph [0071], for example. No new matter is added.

In the outstanding Office Action, Claims 1, 5, 6, 8, 10, 11, 14, 16, 17, and 19 were rejected under 35 U.S.C. § 102(e) as anticipated by Ma et al. (U.S. Patent No. 6,554,954, herein "Ma"). Claims 12, 21, 26, and 27 were rejected under 35 U.S.C. § 102(e) as anticipated by Hubacek (U.S. Patent No. 6,475,336, herein "Hubacek"). Claims 2-4, 7, 12, 15, 21, and 23 were rejected under 35 U.S.C. § 103(a) as obvious over Ma. Claims 9 and 18 were rejected under 35 U.S.C. § 103(a) as obvious over Ma in view of Tong et al. (U.S. Patent Pub. 2004/0083975, herein "Tong"). Claims 22 and 24 were rejected under 35 U.S.C. § 103(a) as obvious over Ma in view of Hubacek.

Regarding the rejection of Claims 1, 5, 6, 8, 10, 11, 14, 16, 17, and 19 as anticipated by Ma and the rejection of Claims 2-4, 7, 12, 15, 21, and 23 as obvious over Ma, those rejections are respectfully traversed by the present response.

Regarding anticipation, MPEP § 2131 states:

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). >"When a claim covers several structures or compositions, either generically or as alternatives, the claim is deemed anticipated if any of the structures or compositions within the scope of the claim is known in the prior art." *Brown v. 3M*, 265 F.3d 1349, 1351, 60 USPQ2d 1375, 1376 (Fed. Cir.

2001) (claim to a system for setting a computer clock to an offset time to address the Year 2000 (Y2K) problem, applicable to records with year date data in "at least one of two-digit, three-digit, or four-digit" representations, was held anticipated by a system that offsets year dates in only two-digit formats). See also MPEP § 2131.02.< "The identical invention must be shown in as complete detail as is contained in the ... claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Regarding obviousness, MPEP § 2143 states:

The Supreme Court in KSR International Co. v. Teleflex Inc., 550 U.S. ___, ___, 82 USPQ2d 1385, 1395-97 (2007) identified a number of rationales to support a conclusion of obviousness which are consistent with the proper "functional approach" to the determination of obviousness as laid down in Graham. The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit.

The invention recited in the amended independent Claim 1 is directed to a plasma processing apparatus including a plasma processing chamber. A susceptor is installed within the plasma processing chamber, the susceptor comprising an electrically conductive material. An electrostatic chuck is formed on the susceptor for mounting thereon a substrate to be processed.

A ring member is directly disposed on the susceptor. An innermost circumference of the ring member surrounds a periphery of the substrate to be processed with a gap between the innermost circumference of the ring member and the periphery of the substrate to be processed when the substrate to be processed is mounted on the electrostatic chuck. The ring member is made of an electrically conductive material.

A lower ring body is disposed directly below the substrate to be processed and the ring member. The lower ring body surrounds a periphery of the electrostatic chuck. When the substrate to be processed is mounted on the electrostatic chuck, a part of an upper surface of the lower ring body is placed directly below the gap between the innermost circumference of the ring member and the periphery of the substrate to be processed.

Further, the susceptor has a **first** surface on which the electrostatic chuck is directly mounted. The susceptor has a **second** surface on which the ring member is directly mounted. The susceptor has a **third** surface on which the lower ring body is directly mounted. The third surface is disposed outside the first surface and inside the second surface. A height of an upper surface of the electrostatic chuck is substantially equal to a height of the second surface. A height of the upper surface of the lower ring body is lower than the height of the second surface.

One benefit of the above-noted arrangement is that since the height of the upper surface of the electrostatic chuck is substantially equal to a height of the second surface, the impedance of the ring member is identical to that of the substrate to be processed to thereby enhance the uniformity of the etching at the peripheral portion of the substrate to be processed. Further, lapping of both surfaces can be carried out simultaneously, thereby reducing a processing cost while improving a precision of the processing. Additionally, the lower ring body prevents the susceptor from being directly exposed to a plasma in the processing space.

In contrast, Ma does not disclose the recited second surface on which the ring member is directly mounted. Further, Ma does not disclose or suggest that a height of a surface on which the ring member is directly mounted is substantially equal to a height of the upper surface of the electrostatic chuck.

Furthermore, since Ma does not disclose a gap between the inner circumference of the ring member and the periphery of the substrate to be processed, Ma does not disclose a part of an upper surface of the lower ring body is placed below a gap between the innermost circumference of the ring member and the periphery of the substrate to be processed.

Accordingly, Ma fails to disclose or suggest the plasma processing apparatus recited in amended independent Claim 1. Therefore, it is respectfully requested that the rejection of Claim 1 be withdrawn.

Amended independent Claim 14 recites substantially similar features to those discussed above regarding amended Claim 1 and patentably distinguishes over Ma for at least the same reasons as amended independent Claim 1 does.

Each of Claims 2-11, 15-19, 22-25, 28 and 30 depends, directly or indirectly, from one of Claims 1 or 14 and patentably distinguishes over Ma for at least the same reasons as amended independent Claims 1 and 14 do.

Regarding the rejection of Claims 12, 21, 26, and 27 as anticipated by Hubacek, that rejection is respectfully traversed by the present response. The invention recited in amended independent Claim 12 is directed to a plasma processing apparatus including a plasma processing chamber. A susceptor is installed within the plasma processing chamber. An electrostatic chuck is disposed on the susceptor for mounting thereon a substrate to be processed. **The electrostatic chuck is formed as one body.**

A ring member is disposed to surround a periphery of the substrate to be processed with a gap therebetween. **The ring member is comprised of an electrically conductive material.** The whole ring member is located directly on the electrostatic chuck and a lower surface of the ring member is higher than an upper surface of the electrostatic chuck.

The electrostatic chuck has a first surface on which the substrate is directly mounted. The electrostatic chuck has a second surface on which the ring member is directly mounted, the second surface being placed outside the first surface. A height of the first surface is substantially equal to a height of the second surface.

One benefit of the above-noted arrangement is that since the height of the first surface is substantially equal to the height of the second surface, the impedance of the ring member is

identical to that of the substrate to be processed to thereby enhance the uniformity of the etching at the peripheral portion of the substrate to be processed. Further, lapping of both surfaces can be carried out simultaneously, thereby reducing a processing cost while improving a precision of the processing. Further, the electrostatic chuck prevents the susceptor from being directly exposed to a plasma in the processing space.

Hubacek describes an electrostatically clamped edge ring for plasma processing. However, Hubacek does not disclose that the electrostatic chuck is formed as one body. In Figs. 1-3 and 5, the substrate and the ring are mounted on two electrostatic chucks (14) and (17), respectively. Accordingly, in Hubacek, two electrostatic chucks should be used in the plasma processing chamber.

Additionally, Hubacek does not disclose that a height of a surface on which the substrate is directly mounted is substantially equal to a height of a surface on which the ring member is directly mounted.

Accordingly, Applicants respectfully submit that amended independent Claim 12 patentably distinguishes over Hubacek for at least the reasons discussed above. Claims 21, 26, 27, and 29 each depend from amended independent Claim 12 and patentably distinguish over Hubacek for at least the same reasons as amended independent Claim 12 does.

Regarding the rejection of Claims 9 and 18 as obvious over Ma in view of Tong, that rejection is respectfully traversed by the present response.

The outstanding Office Action relies on Tong for the particular materials of construction of the ring member recited in dependent Claims 9 and 18.¹ However, Tong fails to remedy the deficiencies discussed above with respect to amended independent Claims 1 and 14 in relation to Ma. Rather, Tong fails to suggest first, second, and third surfaces where a height of an upper surface of the electrostatic chuck is substantially equal to a height of the

¹ Outstanding Office Action, page 6.

second surface, and a height of the upper surface of the lower ring is lower than the height of the second surface as recited in amended independent Claims 1 and 14. Accordingly, Applicants respectfully submit that amended independent Claims 1 and 14, and Claims 9 and 18 depending therefrom, respectively, patentably distinguish over any proper combination of Ma and Tong for at least the reasons discussed above.

Regarding the rejection of Claims 22 and 24 as obvious over Ma in view of Hubacek, Claim 22 depends from amended independent Claim 1, and Claim 24 depends from amended independent Claim 14. Accordingly, Applicants respectfully submit that Claims 22 and 24 patentably distinguish over Ma for at least the same reasons as amended independent Claims 1 and 14 do, respectively.

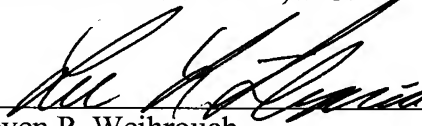
Hubacek fails to remedy the deficiencies discussed above with respect to amended independent Claims 1 and 14 in relation to Ma. Rather, Hubacek fails to teach or suggest the first, second, and third surfaces and specific relationship of these surfaces as recited in amended independent Claims 1 and 14. Accordingly, Applicants respectfully submit that amended independent Claims 1 and 14 and Claims 22 and 24 depending therefrom, respectively, patentably distinguish over any proper combination of Ma and Hubacek for at least the reasons discussed above.

For the foregoing reasons, it is respectfully submitted that this application is now in condition for allowance. A Notice of Allowance for Claims 1-12, 14-19, and 21-30 is earnestly solicited.

Should Examiner Macarthur deem that any further action is necessary to place this application in even better form for allowance, she is encouraged to contact Applicants' undersigned representative at the below-listed telephone number.

Respectfully submitted,

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